FIG. 1

Mature Human GDNF

```
TCA CCA GAT AAA CAA ATG GCA GTG CTT CCT AGA AGA GAG CGG AAT
Ser Pro Asp Lys Gln Met Ala Val Leu Pro Arg Arg Glu Arg Asn
                  5                  10                  15

CGG CAG GCT GCA GCT GCC AAC CCA GAG AAT TCC AGA GGA AAA GGT
Arg Gln Ala Ala Ala Ala Asn Pro Glu Asn Ser Arg Gly Lys Gly
                 20                  25                  30

CGG AGA GGC CAG AGG GGC AAA AAC CGG GGT TGT GTC TTA ACT GCA
Arg Arg Gly Gln Arg Gly Lys Asn Arg Gly Cys Val Leu Thr Ala
                 35                  40                  45

ATA CAT TTA AAT GTC ACT GAC TTG GGT CTG GGC TAT GAA ACC AAG
Ile His Leu Asn Val Thr Asp Leu Gly Leu Gly Tyr Glu Thr Lys
                 50                  55                  60

GAG GAA CTG ATT TTT AGG TAC TGC AGC GGC TCT TGC GAT GCA GCT
Glu Glu Leu Ile Phe Arg Tyr Cys Ser Gly Ser Cys Asp Ala Ala
                 65                  70                  75

GAG ACA ACG TAC GAC AAA ATA TTG AAA AAC TTA TCC AGA AAT AGA
Glu Thr Thr Tyr Asp Lys Ile Leu Lys Asn Leu Ser Arg Asn Arg
                 80                  85                  90

AGG CTG GTG AGT GAC AAA GTA GGG CAG GCA TGT TGC AGA CCC ATC
Arg Leu Val Ser Asp Lys Val Gly Gln Ala Cys Cys Arg Pro Ile
                 95                 100                 105

GCC TTT GAT GAT GAC CTG TCG TTT TTA GAT GAT AAC CTG GTT TAC
Ala Phe Asp Asp Asp Leu Ser Phe Leu Asp Asp Asn Leu Val Tyr
                110                 115                 120

CAT ATT CTA AGA AAG CAT TCC GCT AAA AGG TGT GGA TGT ATC
His Ile Leu Arg Lys His Ser Ala Lys Arg Cys Gly Cys Ile
                125                 130
```

FIG.2

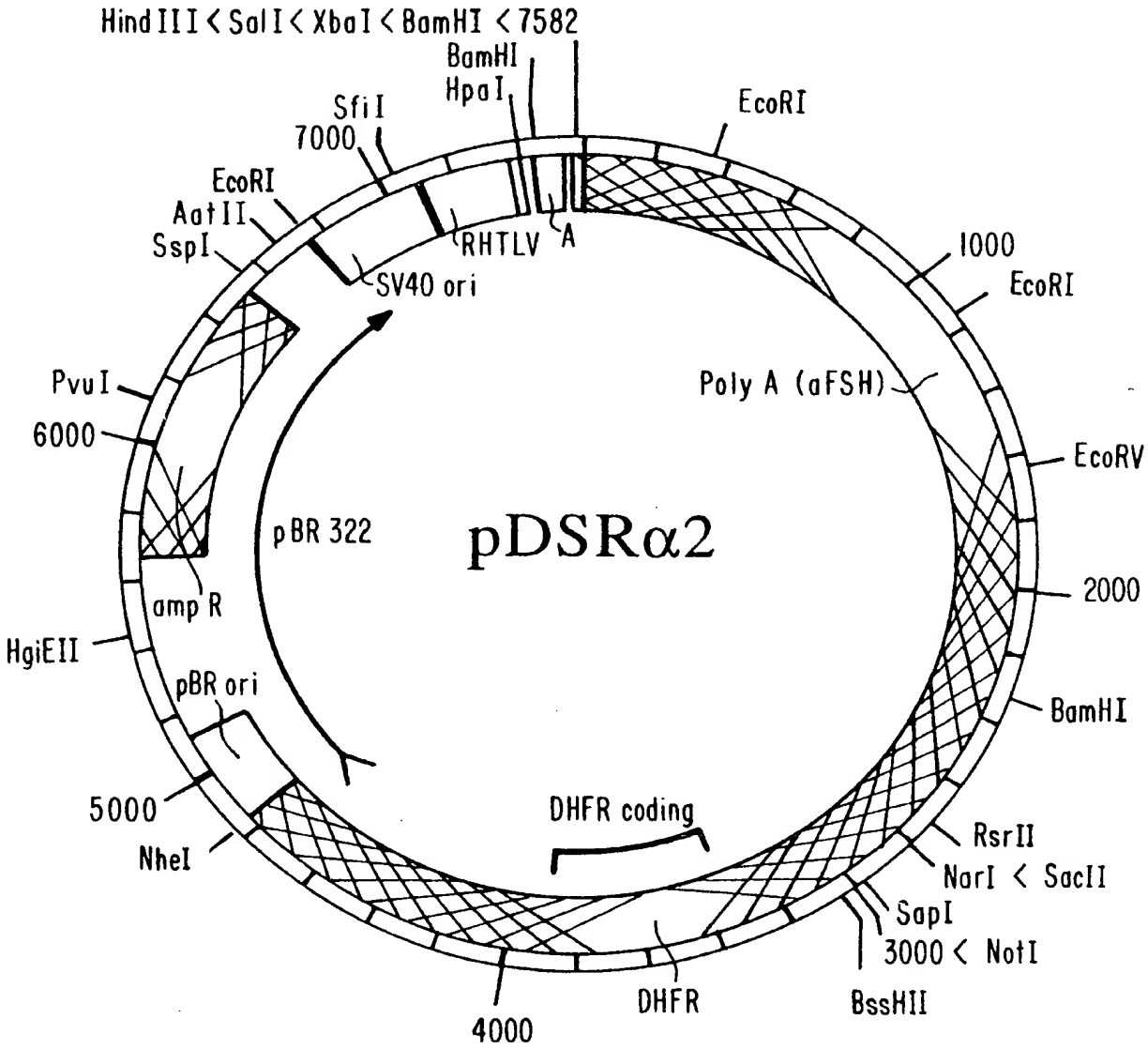

FIG.3A

metGDNF Degenerate DNA Sequence

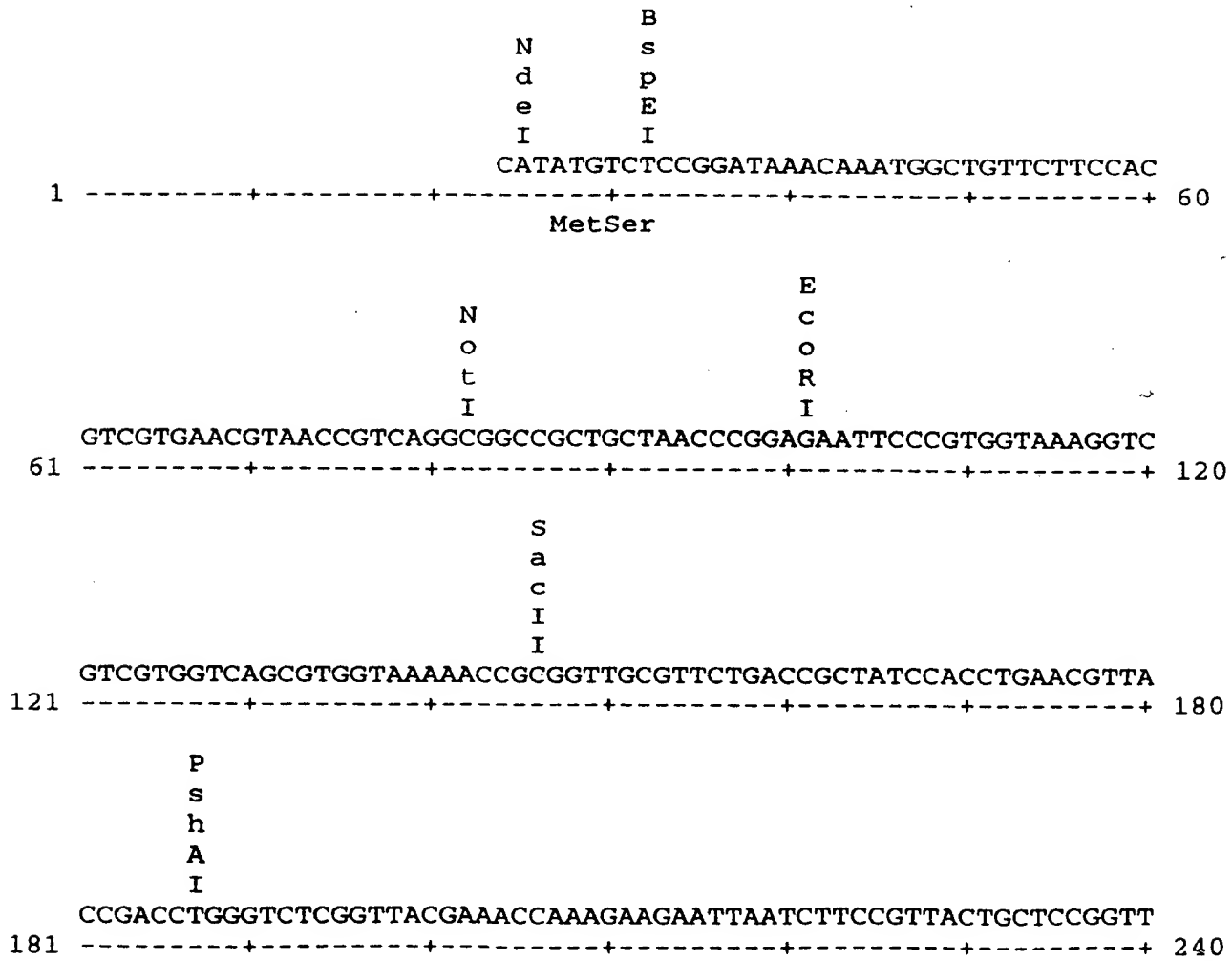

FIG.3B

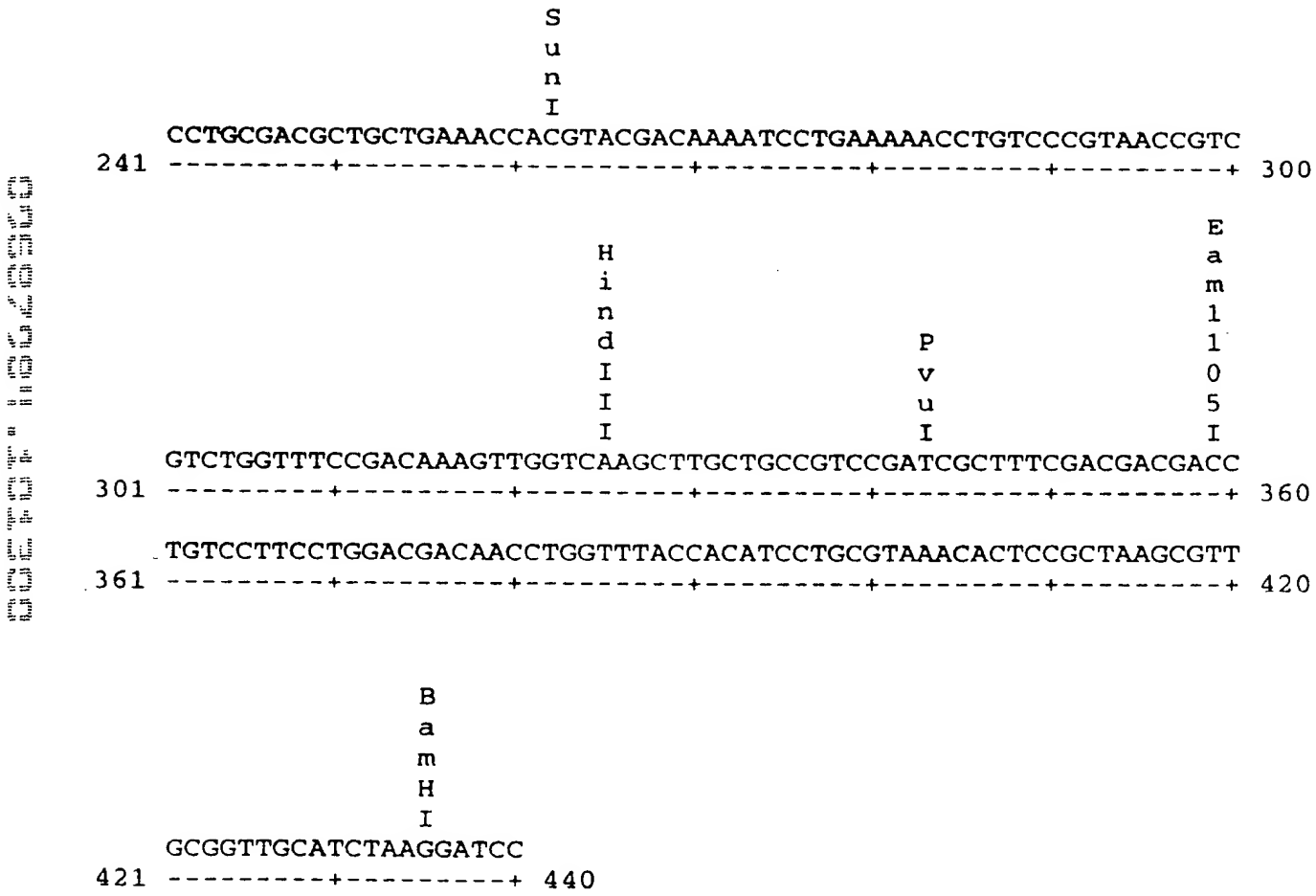

FIG.4

metGDNF Degenerate DNA Sequence

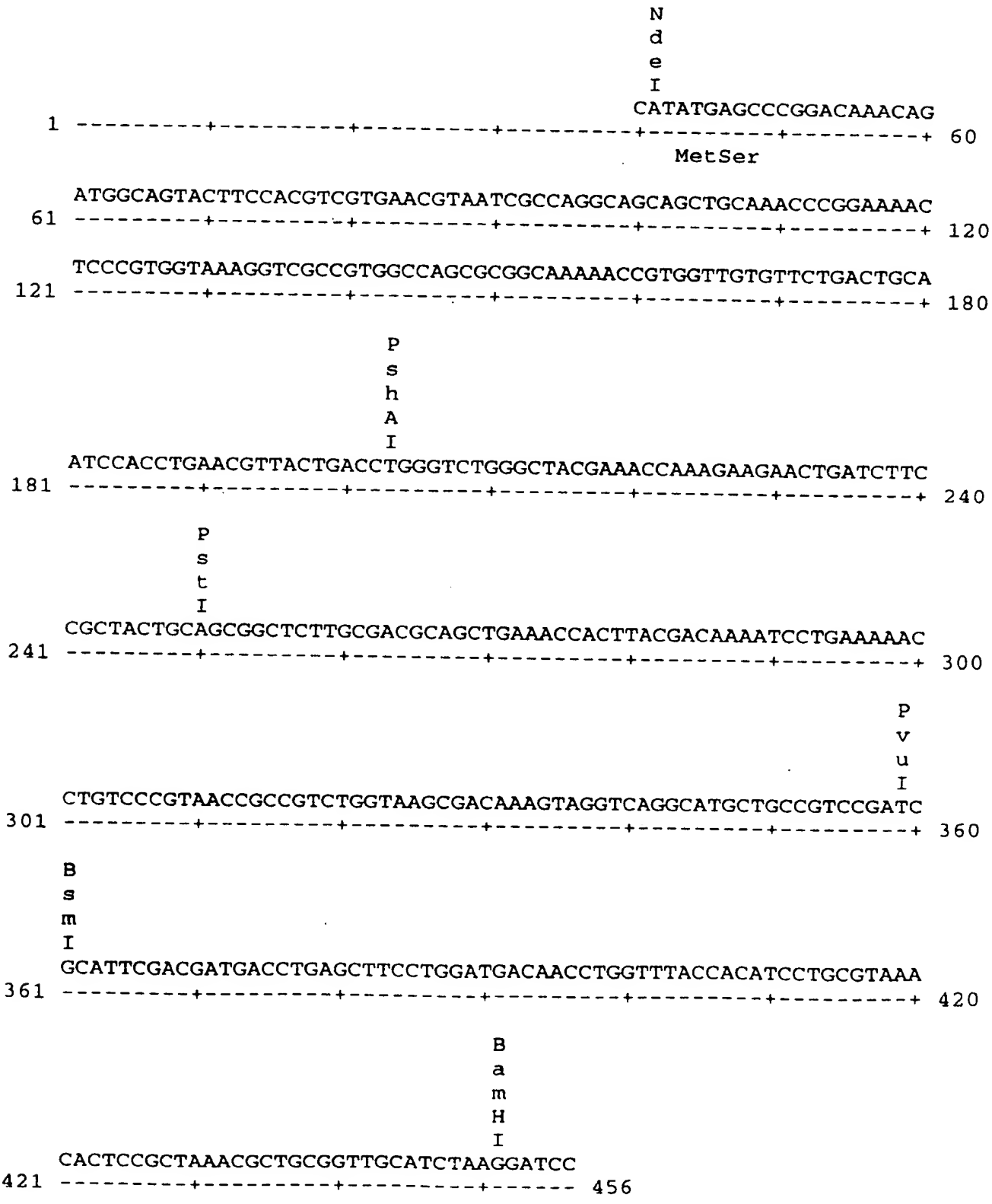

FIG.5

[Pro^{23}-Lys^{37}ΔAsn^{37}-Ile^{134}] Truncated GDNF Protein

```
    ATGTCCCCAGAAAATTCTCGTGGTAAAGGTCGTCGTGGTCAGCGTGGTAATAACCGCGGT
 21 ---------+---------+---------+---------+---------+---------+ 80
    M  S  P  E  N  S  R  G  K  G  R  R  G  Q  R  G  N  N  R  G

    TGCGTTCTGACCGCTATCCACCTGAACGTTACCGACCTGGGTCTCGGTTACGAAACCAAA
 81 ---------+---------+---------+---------+---------+---------+ 140
    C  V  L  T  A  I  H  L  N  V  T  D  L  G  L  G  Y  E  T  K

    GAAGAATTAATCTTCCGTTACTGCTCCGGTTCCTGCGACGCTGCTGAAACCACGTACGAC
141 ---------+---------+---------+---------+---------+---------+ 200
    E  E  L  I  F  R  Y  C  S  G  S  C  D  A  A  E  T  T  Y  D

    AAAATCCTGAAAAACCTGTCCCGTAACCGTCGTCTGGTTTCCGACAAAGTTGGTCAAGCT
201 ---------+---------+---------+---------+---------+---------+ 260
    K  I  L  K  N  L  S  R  N  R  R  L  V  S  D  K  V  G  Q  A

    TGCTGCCGTCCGATCGCTTTCGACGACGACCTGTCCTTCCTGGACGACAACCTGGTTTAC
261 ---------+---------+---------+---------+---------+---------+ 320
    C  C  R  P  I  A  F  D  D  D  L  S  F  L  D  D  N  L  V  Y

    CACATCCTGCGTAAACACTCCGCTAAGCGTTGCGGTTGCATCTAA
321 ---------+---------+---------+---------+-----
    H  I  L  R  K  H  S  A  K  R  C  G  C  I  *
```

FIG.6

[Arg^{32}-Ile^{134}] Truncated GDNF Protein

```
    ATGCGTGGTCAACGTGGTAAAAACCGCGGTTGCGTTCTGACTGCAATCCACCTGAACGTT
 41 ---------+---------+---------+---------+---------+---------+ 100
    M  R  G  Q  R  G  K  N  R  G  C  V  L  T  A  I  H  L  N  V

    ACTGACCTGGGTCTGGGCTACGAAACCAAAGAAGAACTGATCTTCCGCTACTGCAGCGGC
101 ---------+---------+---------+---------+---------+---------+ 160
    T  D  L  G  L  G  Y  E  T  K  E  E  L  I  F  R  Y  C  S  G

    TCTTGCGACGCAGCTGAAACCACTTACGACAAAATCCTGAAAAACCTGTCCCGTAACCGC
161 ---------+---------+---------+---------+---------+---------+ 220
    S  C  D  A  A  E  T  T  Y  D  K  I  L  K  N  L  S  R  N  R

    CGTCTGGTAAGCGACAAAGTAGGTCAGGCATGCTGCCGTCCGATCGCATTCGACGATGAC
221 ---------+---------+---------+---------+---------+---------+ 280
    R  L  V  S  D  K  V  G  Q  A  C  C  R  P  I  A  F  D  D  D

    CTGAGCTTCCTGGATGACAACCTGGTTTACCACATCCTGCGTAAACACTCCGCTAAACGC
281 ---------+---------+---------+---------+---------+---------+ 340
    L  S  F  L  D  D  N  L  V  Y  H  I  L  R  K  H  S  A  K  R

    TGCGGTTGCATCTAA
341 ---------+----- 355
    C  G  C  I  *
```

FIG. 7

[Gly^{33}-Ile^{134}] Truncated GDNF Protein

```
    ATGGGTCAACGTGGTAAAAACCGTGGTTGTGTTCTGACTGCAATCCACCTGAACGTTACT
 41 ---------+---------+---------+---------+---------+---------+ 100
    M  G  Q  R  G  K  N  R  G  C  V  L  T  A  I  H  L  N  V  T

    GACCTGGGTCTGGGCTACGAAACCAAAGAAGAACTGATCTTCCGCTACTGCAGCGGCTCT
101 ---------+---------+---------+---------+---------+---------+ 160
    D  L  G  L  G  Y  E  T  K  E  E  L  I  F  R  Y  C  S  G  S

    TGCGACGCAGCTGAAACCACTTACGACAAAATCCTGAAAAACCTGTCCCGTAACCGCCGT
161 ---------+---------+---------+---------+---------+---------+ 220
    C  D  A  A  E  T  T  Y  D  K  I  L  K  N  L  S  R  N  R  R

    CTGGTAAGCGACAAAGTAGGTCAGGCATGCTGCCGTCCGATCGCATTCGACGATGACCTG
221 ---------+---------+---------+---------+---------+---------+ 280
    L  V  S  D  K  V  G  Q  A  C  C  R  P  I  A  F  D  D  D  L

    AGCTTCCTGGATGACAACCTGGTTTACCACATCCTGCGTAAACACTCCGCTAAACGCTGC
281 ---------+---------+---------+---------+---------+---------+ 340
    S  F  L  D  D  N  L  V  Y  H  I  L  R  K  H  S  A  K  R  C

    GGTTGCATCTAA
341 ----------+-- 352
    G  C  I  *
```

FIG.8

Comparison of Protein Sequences

```
                                                                    50
     GDNF  MSPDKQMAVL PRRERNRQAA AANPENSRGK GRRGQRGKNR GCVLTAIHLN
-31  GDNF  .......... .......... .......... .MRGQRGKNR GCVLTAIHLN
-32  GDNF  .......... .......... .......... ..MGQRGKNR GCVLTAIHLN
-22  GDNF  .......... .......... .MSPENSRGK GRRGQRGNNR GCVLTAIHLN

           51                                                       100
     GDNF  VTDLGLGYET KEELIFRYCS GSCDAAETTY DKILKNLSRN RRLVSDKVGQ
-31  GDNF  VTDLGLGYET KEELIFRYCS GSCDAAETTY DKILKNLSRN RRLVSDKVGQ
-32  GDNF  VTDLGLGYET KEELIFRYCS GSCDAAETTY DKILKNLSRN RRLVSDKVGQ
-22  GDNF  VTDLGLGYET KEELIFRYCS GSCDAAETTY DKILKNLSRN RRLVSDKVGQ

           101                                    135
     GDNF  ACCRPIAFDD DLSFLDDNLV YHILRKHSAK RCGCI
-31  GDNF  ACCRPIAFDD DLSFLDDNLV YHILRKHSAK RCGCI
-32  GDNF  ACCRPIAFDD DLSFLDDNLV YHILRKHSAK RCGCI
-22  GDNF  ACCRPIAFDD DLSFLDDNLV YHILRKHSAK RCGCI
```